

## **REMARKS**

The specification has been objected to because the wording of the Abstract of the Disclosure is improper. A substitute abstract has been submitted to overcome this objection.

Claim 2 has been objected to because it recites acronyms without defining them. Claims 1-10 have been cancelled and new claims 11 through 20 have been presented. The new claims do not contain the acronyms. In any case, "high order mode" (HOM) and "super large area" (SLA) are terms of art. US 2004/228 593 and US 2008/138 011 may be consulted regarding the use of the acronyms SLA and HOM in this technical field.

Claims 5, 9 and 10 have been rejected under 35 USC 101 because the invention claimed therein is directed to non-statutory subject matter. Those claims have been cancelled and new claims are presented. The new claims have been drafted to overcome this rejection.

Claims 1-6, 9 and 10 have been rejected under 35 USC 112, second paragraph, as being indefinite. Those claims have been cancelled and new claims are presented. The new claims have been drafted to overcome this rejection.

Claims 1, 5, 6, 8 and 9 have been rejected under 35 USC 103(a) as allegedly unpatentable over Stock (US 6249630), in view of Moeller (US 2004/062552), further in view of Harstead (US 5912749). Those claims have been cancelled and new claims are presented. The new claims have been drafted to overcome this rejection.

Stock relates to the delivery of high peak power pulses through an optical fiber in an optical measurement system (see *e.g.* column 5, lines 6-10). In this context, as mentioned in column 6, line 36, the peak power is of the order of 1kW or more (see also column 5, line 49 and column 10, line 10) and the pulses are transmitted only over very short distance (corresponding to the measurement device dimensions).

As the Examiner admits, Stock does not relate to a data transmission network (page 7, line 2 of the Office Action) and its teachings, in view of the context reminded above, are totally irrelevant to data transmission networks where peak powers (generally far less than 1 W) and distances involved are totally different.

Moeller on the other hand relates to data transmission and suggests applying a polarisation mode dispersion (PMD) in order to produce two replica signals spaced by a differential group delay (DGD). According to the teachings of Moeller (§ 17), *"the signal's pulse peak power is reduced. In this manner, the magnitude of non-linear effect decreases"*.

Moeller therefore describes a complete solution to reduce non-linear effect in the context of data transmission. There would thus be no reason why a person skilled in the art would seek to modify the technique described by this document to reduce non-linear effects.

Further, even if one considered for the sake of argument that a person skilled in the art would try to go against the teachings of Moeller, he or she would not turn to Stock first because Stock uses a different technique for spreading pulses (chromatic dispersion in Stock vs. Polarisation mode dispersion in Moeller), and further because Stock relates to a different technical context as mentioned above. In view of the difference in peak

power and distances between these technical areas, the person skilled in the art would not be likely to combine the teachings of Stock and Moeller.

Accordingly, in view of the major differences between data transmission and transmission of pulses in an optical measurement device, one skilled in the art would know not to combine the teachings of Moeller and Stock.

Further, even if one considered for the sake of argument that the teachings of these references could be combined, such combination fails to teach a spreader module "*for linearly spreading pulses*" as the Examiner admits (page 7, lines 10-11 of the Office Action).

The Examiner however asserts that this feature would be obvious in view of Harstead. Harstead relates to optical communication systems, and particularly to passive optical networks (PONs). In this context, in order to obtain WDM channels occupying different time slots, Harstead suggests to use a short-pulse source and to stretch these short pulses to a large fraction of the time between pulses, by linear dispersion in a fiber (see column 4, lines 8-12 cited by the Examiner). It is therefore clear that the object of pulse stretching in Harstead relates to the transmission technique taught therein, *i.e.* wavelength division multiplex (WDM).

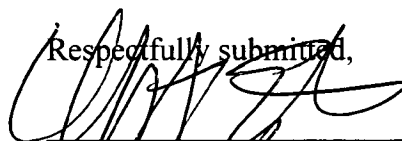
As a result, there is thus no reason why a person skilled in the art would use the teachings of Harstead either in the context of Stock or in the context of Moeller. For instance, since in Stock the pulse stretching is meant to reduce peak power, there is no reason why a person skilled in the art would turn to Harstead where pulse stretching is made within the context of WDM and has therefore totally different requirements.

It should also be noted that, as both Stock and Moeller each have taught a specific solution for reducing non-linear effects (see Stock, column 5, lines 16-20 and Moeller, § 6), a person skilled in the art would not consider the teaching of a further document concerning linear propagation (as this would be totally redundant).

In conclusion, even if one considered for the sake of argument that Stock and Moeller could be combined, the solution to the issues of non-linearities provided by those documents would teach the person skilled in the art away from considering the teachings of Harstead.

It is further noted that the mere fact that three references three need to be combined to render the claims obvious is itself an indication that claimed invention could not be obviously derived from the prior art.

Respectfully submitted,



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